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COSMETIC PREPARATION FOR SCALP

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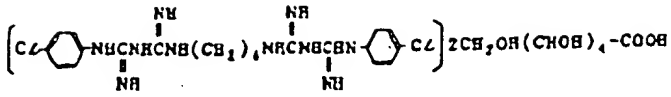
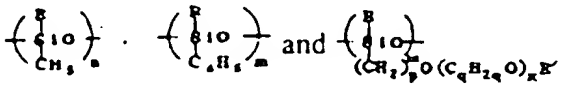
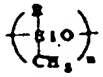
Claim

A type of cosmetic preparation for the scalp, characterized by the fact that it contains 0.01-1 wt% chlorohexidine gluconate represented by formula



0.1-10 wt% silicone oil comprised of units A, B, and C, and 10-80 wt% ethanol, represented by the following formulas:
unit A is R_3SiO-; unit B is at least one type selected from the group of



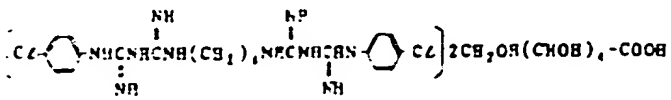
(where, in  of unit B, R = CH_3 is excluded); and unit C is R_3Si- (where R represents CH_3, C_6H_5, or $(CH_2)pO(C_qH_{2q}O)_XR'$, R' represents H or C_{1-5} alkyl group, p is in the range of 0-5, q is 2 or 3, x is in the range of 1-50, n is in the range of 4-50, m is in the range of 1-50, and n + m = 5-100).

Detailed explanation of the invention

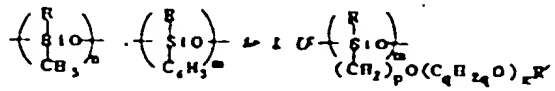
The present invention pertains to a scalp cosmetic, and in particular, concerns a scalp cosmetic that prevents the production of a foul odor due to the microbial decomposition of sweat from the scalp, imparts moisture to the scalp, prevents itching, and also is not sticky and provides a freshening sensation.

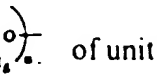
Foul odors of the scalp are known to be generated by microbial decomposition of oils and proteins on the scalp that are produced when a person sweats. In order to prevent the aforementioned foul odors, the use of antiperspirants or antimicrobial deodorants has been offered, and examples of antimicrobial deodorants include halogen-substituted or unsubstituted phenyl derivatives, organic mercury compounds, quaternary ammonium compounds, and amino acid derivatives having sterilizing actions. When these antimicrobial deodorants have been used, the danger of skin irritation is not as high as with antiperspirants, but there are cases where side effects occur such as light sensitivity and sun poisoning. In addition, most of these deodorants are not odorless, and have a slight phenol odor.

The objective of the present invention is to offer a scalp cosmetic that has good deodorant properties, moisturizes the scalp, prevents itching, and also is not sticky and gives a freshening sensation. The scalp cosmetic of the present invention is characterized by containing 0.01-1 wt% chlorhexidine gluconate represented by the formula:



0.1-10 wt% silicone oil comprising units A, B and C represented by the general formula below, and 10-80 wt% ethanol, where unit A is R_3SiO-, unit B is at least one unit selected from a group comprising:

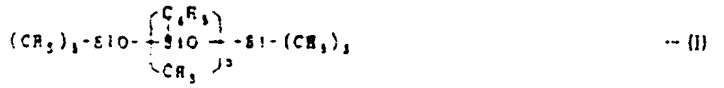


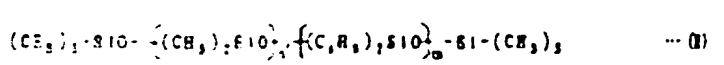
(excluding R = CH_3 in  of unit B)

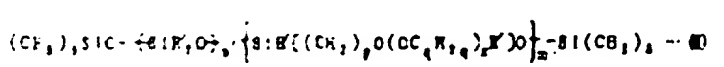
unit C is R_3Si- (where R in the general formula above is CH_3, C_6H_5 or $(CH_2)_pO(C_qH_{2q}O)_xR'$, R' is H or a C_1-C_5 alkyl group, p is 0-5, q is 2 or 3, x is 1-50, n is 4-50, m is 1-50 and n + m = 5-100).

If the added amount of the aforementioned chlorhexidine gluconate is less than 0.01 wt%, the action of killing biological skin parasites will be insufficient, and it will not be possible to obtain deodorizing or itch prevention effects. On the other hand, if this amount exceeds 1 wt%, the substance will be sticky, and it will not be possible to endow the skin with a moisturizing sensation. The preferred used amount of the chlorhexidine gluconate is 0.02-0.5 wt%.

An example of a desirable combination of the A, B and C units in the silicone oil comprising the A, B and C units represented by the general formulas above include the methylphenylpolysiloxane represented by general formulas I and II below and the organopolysiloxane-polyoxyalkylene copolymer represented by general formula III below.







In general formulas I, II and III, n is 4-50, m is 1-50, n + m is 5-100, n = n'+m, p is 0-5, q is 2 or 3, x is 1-50, and R' is CH_3 or a group wherein part of the CH_3 is substituted with $-(CH_2)_pO-(OC_qH_{2q})_xR''$ (where R'' denotes a hydrogen or an alkyl group with a carbon number of 1-5).

If the added amount of the aforementioned silicone oil is less than 0.1 wt%, then the capacity for uniform dispersion of the aforementioned chlorhexidine gluconate used as bactericidal agent in the present invention at the scalp surface will be compromised, and an adequate moisturizing sensation will not be imparted to the scalp. On the other hand, if the added

amount is greater than 10 wt%, then the scalp will feel oily, and sticky, which is undesirable. The preferred added amount of the aforementioned silicone oil is 0.1-5 wt%.

In the present invention, if the used amount of ethanol is less than 10 wt%, then there will be little freshening sensation, whereas if this amount exceeds 80 wt%, the ethanol odor will become noticeably strong. In addition, the scalp of sensitive individuals will become irritated, leading to inflammation or keratinization. The preferred range of the used amount of ethanol is 30-80 wt%. Water can be added along with ethanol, and in such a case, the water can be added at up to 85 wt%.

As with water, oil component, emulsifier, thickener, colorant, fragrance and other substances can also be added as necessary to the aforementioned three essential components.

Conjecture as to the reason that the scalp cosmetic of the present invention prevents foul odors and itching, moisturizes the scalp, provides a freshening sensation and prevents stickiness is presented below. Specifically, the chlorhexidine gluconate that has excellent antimicrobial power has decreased surface tension due to its use in combination with silicone oil and ethanol, and so it is distributed uniformly on the skin, which allows it to sufficiently manifest its antimicrobial power. In addition, because a uniform coating of silicone oil is formed over the surface of the scalp, decomposition of the antimicrobial agent due to air oxidation and recontamination by microorganisms in the air are prevented so that the antimicrobial effects and dryness inhibition effects of the skin are retained.

The effects of the present invention are described below by providing application examples. The evaluation methods used in the application examples will first be discussed.

Evaluation methods

5 g of the scalp cosmetic were applied or distributed onto the scalp after shampooing, and subsequently, evaluations were carried out according to the criteria below based on the scalp smell after three days without shampooing, the moisturizing sensation at the scalp, scalp itching, and the freshening sensation at the scalp.

O: Superior effects relative to when composition was not used.

Δ: Fairly good effects relative to when composition was not used.

X: Same effects relative to when composition was not used.

In addition, evaluation of scalp stickiness was carried out using the following criteria.

O: No stickiness relative to case where composition was not used.

D: Slightly more sticky than when composition was not used.

X: Inordinately sticky relative to when composition was not used.

Application Example 1

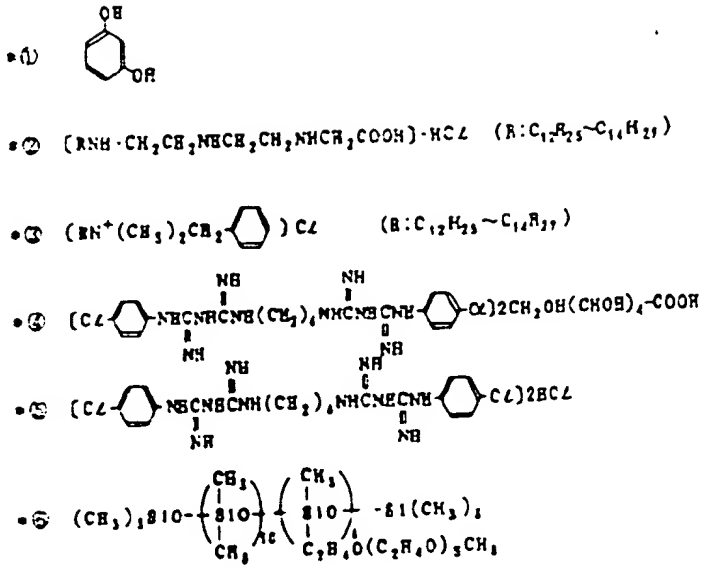
A scalp cosmetic was prepared which was composed of compositions produced by blending the various antimicrobial agents shown in Table 1. As shown in Table 1, the results indicated that the antimicrobial agents other than chlorhexidine gluconate were not able to provide the effects of the present invention.

Table 1

① 試験No. / ② 成分			1	2	3	4	5	6
③ 配合組成(重量%)	④ 殺菌剤	レゾルシン ⑤ *1	0	0.5	0	0	0	0
		塩酸アルキルジアミノエチレングリコール ⑥ *2	0	0	0.5	0	0	0
		塩化ベンザルコニウム ⑦ *3	0	0	0	0.5	0	0
		グルコン酸クロルヘキシジン ⑧ *4	0	0	0	0	0.5	0
		塩酸クロルヘキシジン ⑨ *5	0	0	0	0	0	0.5
	POE変性シリコーン ⑩ *6		1.0	1.0	1.0	1.0	1.0	1.0
	エタノール ⑪		80	80	80	80	80	80
	香料 ⑫		0.2	0.2	0.2	0.2	0.2	0.2
	水 ⑬		残量 ⑳					
⑭ 性能	頭皮臭 ⑮		×	×	×	△	○	△
	かゆみ ⑯		×	×	△	△	○	△
	うるおい感 ⑰		△	△	△	△	○	×
	爽快感 ⑱		○	○	○	○	○	△
	ベたつき ⑲		○	△	△	△	○	△

Key:
1 Test No.
2 Component
3 Blend composition (wt%)
4 Antimicrobial agent
5 Resorcin *1
6 Alkyldiamine ethylene glycol hydrochloride *2
7 Benzalkonium chloride *3
8 Chlorhexidine gluconate *4
9 Chlorhexidine hydrochloride *5
10 POE-modified silicone *6
11 Ethanol
12 Fragrance
13 Water
14 Performance
15 Scalp odor
16 Itching

17 Moisture
18 Freshening
19 Sticky
20 Remainder

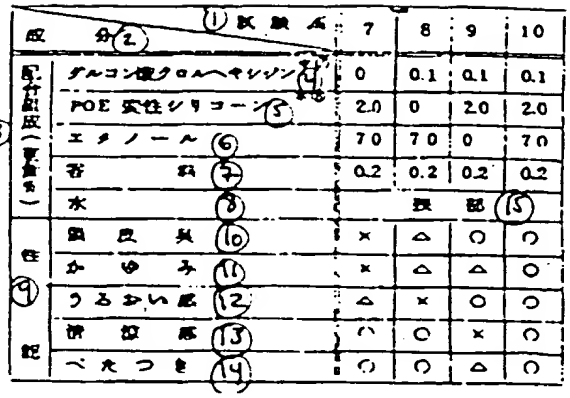


Application Example 2

A skin cosmetic was prepared from the blend composition shown in Table 2, and the performance was tested.

The results, as shown in the table, indicated that the effects of the present invention could not be obtained when any one of the essential components of the present invention, namely chlorhexidine gluconate, silicone oil or ethanol, was not present.

Table 2



(2) 成分 \ (1) 試験No.	7	8	9	10
(3) 配合組成(重量%) グルコン酸クロルヘキシジン(4)	0	0.1	0.1	0.1
POE変性シリコーン(5)	2.0	0	2.0	2.0
エタノール(6)	7.0	7.0	0	7.0
香料(7)	0.2	0.2	0.2	0.2
水(8)		残	残	(15)
(9) 性能 黒点数(10)	×	△	○	○
かゆみ(11)	×	△	△	○
うるおい感(12)	△	×	○	○
爽快感(13)	○	○	×	○
ベたつき(14)	○	○	△	○

*7 and *8 are the same as the compounds of Table 1.

Key:
1 Test No.
2 Component
3 Blend composition (wt%)
4 Chlorhexidine gluconate*7
5 POE-modified silicone*8
6 Ethanol
7 Fragrance
8 Water
9 Performance
10 Scalp odor
11 Itching
12 Moisture
13 Freshening
14 Sticky
15 Remainder

Application Example 3

Scalp cosmetics of 17 types were prepared based on the blend compositions shown in Table 3, and performance was evaluated.

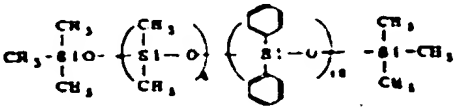
Test Nos. 11-16 involved changing the blend amount of chlorhexidine gluconate, Test Nos. 17-22 involved changing the blend amount of methylphenylsilicone, and Test Nos. 23-27 involved changing the blend amount of ethanol.

The results, as indicated in the table, showed that the effects of the present invention were not obtained in Test Nos. 11, 16, 17, 22, 23 and 27, wherein the blend amounts of the essential components did not conform to the conditions prescribed by the present invention.

Table 3

成分(1) \ 試験No.(2)	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
(3) 配合組成(重量%) グルコン酸クロルヘキシジン(4)	0.005	0.01	0.1	0.5	1.0	1.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
メチルフェニルシリコーン(5)	5	5	5	5	5	5	0.05	0.1	1	5	10	15	5	5	5	5	5
エタノール(6)	50	50	50	50	50	50	50	60	50	50	50	50	5	10	30	80	90
POEステアリルエーテル(EOV=10)(7)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
香料(8)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
水(9)	← 残(16)量 →																
(10) 性能 洗髪後(11)	×	○	○	○	○	○	△	○	○	○	○	○	○	○	○	○	○
かゆみ(12)	×	○	○	○	○	○	△	○	○	○	○	○	△	○	○	○	△
うるおい感(13)	○	○	○	○	○	○	△	○	○	○	○	○	○	○	○	○	△
爽快感(14)	○	○	○	○	○	○	○	○	○	○	○	○	×	○	○	○	△
ベたつき(15)	○	○	○	○	○	△	○	○	○	○	○	×	○	○	○	○	○

*9 Same as compound of Table 1

*10 

Key:
1 Component
2 Test No.
3 Blend composition (wt%)
4 Chlorhexidine gluconate*9
5 Methylphenylsilicone*10
6 Ethanol
7 POE stearyl ether (EOV = 10)
8 Fragrance
9 Water
10 Performance
11 Scalp odor
12 Itching
13 Moisture
14 Freshening
15 Sticky
16 Remainder